

Amendments to the Specification

In the Summary of the Invention section of the application, please replace original paragraphs [0010], [0014], [0015], [0019], [0039], [0040], [0041], [0045], [0047], [0049], [0054], [0057], [0059], [0061], [0066], [0068], [0072], [0076], [0077], [0078], [0097], and [0156] with the following paragraphs [0010], [0014], [0015], [0019], [0039], [0040], [0041], [0045], [0047], [0049], [0054], [0057], [0059], [0061], [0066], [0068], [0072], [0076], [0077], [0078], [0097], and [0156], respectively:

[0010] Therefore, the flow of the control data of the vertical direction and the flow of the data of the horizontal direction are both simultaneously and contradictorily present inside the vertically written program flowchart, and the flow of the data is cut off.

[0014] In order to achieve this object, the present invention is a multi-dimensional programming device comprised of an object file unit storing object information for creating a multi-dimensional, horizontally written flowchart, such as a two-dimensional flowchart, a three-dimensional flowchart and a four-dimensional flowchart; an object editing unit for using the object information read from the object file unit to edit the multi-dimensional flowchart; a drafting unit for drafting the edited multi-dimensional flowchart; and a saving unit for saving the edited multi-dimensional flowchart into the object file unit. (~~Invention according to claim 1~~)

[0015] Further, the present invention is a multi-dimensional programming method for reading object information from an object file unit storing object information for creating a multi-dimensional, horizontally written flowchart, such as a two-dimensional flowchart, a three-dimensional flowchart and a four-dimensional flowchart; using the object information to edit the multi-dimensional flowchart; drafting the multi-dimensional, horizontally written flowchart, such as the two-dimensional flowchart, the three-dimensional flowchart, and the four-dimensional

flowchart, based on the edited multi-dimensional flowchart; and saving the edited multi-dimensional flowchart into the object file unit. (~~Invention according to claim 2~~)

[0019] According to ~~T~~the position of each viewpoint is specified by means of coordinates, and the reason why it is thought portions can be seen and cannot be seen according to each viewpoint is thought to be because and the coordinate axis changes.

[0039] In order to enable the display of the basic programming space such as is described above onto a two-dimensional display device, the present invention is provided with an object file unit in which there is stored object information for creating a multi-dimensional, horizontally written flowchart, such as a two-dimensional flowchart, a three-dimensional flowchart and a four-dimensional flowchart. (~~Each invention according to claim 1 and claim 2~~).

[0040] The object information saves program flowchart symbol information, such as a start terminator and an end terminator, along with coordinate information (for example coordinate information specifying a location by rows and columns), cell information described as, for example, an area of an intersection of the coordinates (e.g., the rows and the columns), character information and the like. (~~Invention according to claim 3~~)

[0041] In order to make the multi-dimensional space visible on a two-dimensional display device such as a display, it is important to include the coordinate information in the object information. It is desirable for the coordinate information to include a combination of a time axis, a data axis and a control axis, a combination of the time axis, the data axis, the control axis and a CPU axis, a combination of the time axis, the data axis, the control axis, the CPU axis and an event axis; a combination of the time axis, the data axis, the control axis, the CPU axis, the event axis and a condition axis; and a combination of the time axis, the data axis, the control

axis, the CPU axis, the event axis, the condition axis and a PC axis. (~~Invention according to claim 4~~)

[0045] According to the present invention, in a screen which is drafted with the time axis, the data axis, the control axis, the CPU axis, the event axis, the condition axis and the PC axis as its coordinate information, a screen construction is used in which a horizontal axis becomes the time axis and a vertical axis is used for the data axis, the control axis, the CPU axis, the event axis, the condition axis and the PC axis. (~~Invention according to claim 5~~)

[0047] The object editing unit of the present invention makes a programming space displayable on the screen by means of three-dimensional basic coordinates which take the horizontal axis as the time axis and use the vertical axis for at least the data axis and the control axis, and also, performs the editing of the screen and the like according to an input command signal. (~~Invention according to claim 6~~)

[0049] Thus, in order to take a cross section for the programming space and see an inside portion of the program, the object editing unit makes it possible to switch the dimension being shown. (~~Invention according to claim 7~~)

[0054] Further, in the case of the screen construction in which the vertical axis represents the data axis, the control axis, the CPU axis, the event axis, the condition axis and the PC axis, flat surfaces of draftable programming spaces are made into a group and assigned by means of tabs. (~~Invention according to claim 8~~)

[0057] Therefore, the object editing unit is provided with a function for shrinking or restoring the coordinate information by units of rows and columns. (~~Invention according to claim 9~~)

[0059] Further, the object editing unit is provided with a function for burying a given coordinates axis into another coordinates axis, such as by decreasing the number of dimensions, centered around the time axis which is common throughout the programming space. (Invention according to claim 10)

[0061] Further, the saving unit contains horizontal slit information having one line's worth of cell objects, and flat surface object information having an object on a flat surface corresponding to the horizontal slit. (Invention according to claim 11)

[0066] FIG. 2 is a viewpoint diagram of the same basic four-dimensional programming space;

[0068] FIG. 4 is a developed diagram of the same basic programming space depicted in FIG. 1;

[0072] FIG. 8 is a system flowchart of control according to the present invention;

[0076] FIG. 12 is a diagram plan view of an example display of a three-dimensional programming flowchart;

[0077] FIG. 13 is an diagram elevation view of the example display of the three-dimensional programming flowchart;

[0078] FIG. 14 is a diagram side elevation of the example display of the three-dimensional programming flowchart;

[0097] As shown in FIG. 5, a multi-dimensional programming device (hereinafter referred to simply as "device") according to the present embodiment is comprised of a memory means 7 equipped with an object file unit 5 and a program file unit 6 and an object file unit 5 for storing object information for making a multi-dimensional, horizontally written flowchart; a

central processing unit (CPU) 9A equipped with an object editing unit 8 for editing the multi-dimensional flowchart using the object information read from the object file unit 5 and a saving unit 9 for saving the edited multi-dimensional flowchart into the object file unit 5; and an image processing unit 9B acting as a drafting unit for drafting the edited multi-dimensional flowchart.

[0156] In the case where the screen of the display device 692 is narrow, it becomes difficult to view the entire processing as a whole; however, as long as there are the above-mentioned functions for shrinking and restoring (i.e., expanding), it is possible to switch between the overall view and the detailed view while working.